What is claimed is:

1. A wavelength tunable laser comprising

a laser diode, and

a wavelength selective external cavity optically coupled to the laser diode, the external cavity including a resonator, first and second waveguides optically coupled to the resonator, and a reflector optically coupled to the second waveguide.

2. The tunable laser of claim 1 wherein the first and second waveguides are vertically coupled to the resonator.

3. The tunable laser of claim 2 wherein the first and second waveguides and the resonator are formed on a single substrate comprising a plurality of layers.

4. The tunable laser of claim 3 wherein the plurality of layers includes a separation layer interposing the first and second waveguides and a core layer of the resonator.

5. The tunable laser of claim 4 wherein the first of second waveguides are formed in the same layer.

6. The tunable laser of claim 4 wherein the first and second waveguides are formed in different layers.

7. The tunable laser of claim 1 wherein the first and second waveguides are horizontally coupled to the resonator.

8. The tunable laser of claim 5 wherein coupling gaps interpose the resonator and the first and second waveguides.

9. The tunable laser of claim 1 wherein the resonator comprises a plurality of resonators.

10. The tunable laser of claim 1 further comprising a coupling lens interposing an end facet of the laser diode and an end facet of the first waveguide.

11. The tunable laser of claim 1 wherein the laser diode is butt-joint coupled to the first waveguide.

12. The tunable laser of claim 1 wherein the laser diode and external cavity are formed on a single substrate.

13. The tunable laser of claim 1 wherein the reflector comprises a mirror positioned adjacent an end facet of the second waveguide.

14. The tunable laser of claim 13 further comprising a collimated lens interposing the mirror and second waveguide.

15. The tunable laser of claim 1 wherein the reflector comprises a reflection coating applied to an end facet of the second waveguide.

16. The tunable laser of claim 12 further comprising an electro-absorption modulator formed on the substrate with the laser diode and external cavity and positioned adjacent an output end facet of the laser diode.

17. The tunable laser of claim 16 further comprising an external gain section formed adjacent the electro-absorption modulator.

18. The tunable laser of claim 1 wherein at least one of the first and second waveguides includes an amplifier.

19. The tunable laser of claim 1 wherein the laser diode comprises a multi-layer semiconductor wafer structure including first and second end facets.

20. The tunable laser of claim 19 wherein one of the first and second end facets is coated with an anti-reflection coating.